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Forest Insect & Disease Management

Evaluation Report

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Endomycorrhizae Development on Black Walnut Seedlings From the Southern Michigan State Nursery

By

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Black walnut seedlings at the Southern Michigan State Nursery were analyzed for endomycorrhizae development as part of a Northeastern Area State nursery survey on endomycorrhizae of black walnut. These endomycorrhizae have been shown to increase the absorbing surface of the roots, enable the plants to obtain bound nutrients, increase root longevity, and increase resistance to certain pathogen fungi.

The percentage of trees with endomycorrhizae and the average percentage of feeder roots endomycorrhizal on each seedling was determined by selecting 80 trees at random from 2 beds in the nursery, taking a 10% root sample from sequential samplings of the seedlings and counting the number of feeder roots on each seedling with or without endomycorrhizae (Figure 1).

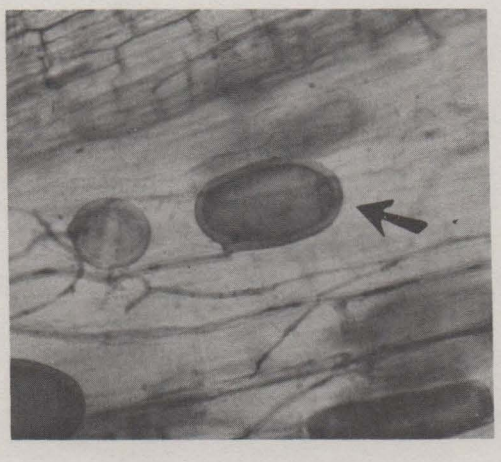

Figure 1. Fungus Fruiting Structure inside of cleared root (400X).

RESULTS

One hundred percent of the trees examined had endomycorrhizae. Examination of the feeder roots revealed an average of 83.2 percent ($SE_{\bar{x}}$ 3.4) of the feeder roots had endomycorrhizae on the walnut seedlings.

In addition to the mycorrhizae analysis, examination of the roots from the 80 seedlings revealed that the samples were root rot free.